

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1-9. (Canceled)

10. (New) An electromagnetic switching device, comprising:

an electromagnetic actuator, comprising a solenoid coil, a movable iron core, a first yoke disposed at one end of the solenoid coil and comprising an insertion hole, and a second yoke disposed at another end of the solenoid coil;

a pair of fixed terminals, each of which has a fixed contact point at one end thereof and a terminal area connected to an external circuit at another end thereof;

a movable contact, comprising a pair of movable contact points that contact and separate from the fixed contact points;

first and second springs disposed between the movable contact and the first yoke, one of the first and second springs being stronger than another of the first and second springs;

a shaft, comprising a retentive part at one end thereof that retains the movable contact, the shaft being inserted through the insertion hole of the first yoke and being fixed to the movable iron core at another end thereof; and

an enclosure which encloses the movable contact points and the fixed contact points, wherein the pair of movable contact points contact and separate from the fixed contact points by movement of the shaft by moving the movable iron core along an axis

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of the electromagnetic actuator, and the movable contact points and the fixed contact points are disposed in a substantially sealed space formed between the enclosure and the first yoke.

11. (New) The electromagnetic switching device according to claim 10, further comprising a body which surrounds the electromagnetic actuator and the enclosure, and a potting compound which fills a space between the body and the enclosure.

12. (New) The electromagnetic switching device according to claim 10, wherein a width of a central portion of the enclosure is narrower than a width of outer portions of the enclosure.

13. (New) The electromagnetic switching device according to claim 10, wherein a recess is formed on an underside of the enclosure, a flange is formed on an end of the shaft and inserts into the recess, an insertion hole is formed in the flange, a valve opens and closes the insertion hole formed in the flange, and the recess is filled with one of a gas, a liquid and particles which provide resistance against movement of the shaft.

14. (New) The electromagnetic switching device according to claim 10, further comprising a mass, provided in the movable iron core, which vibrates in a direction of the axis of the electromagnetic actuator to reduce vibration of the movable iron core.

15. (New) The electromagnetic switching device according to claim 10, wherein a gap is formed between the first yoke and the movable iron core.

16. (New) The electromagnetic switching device according to claim 10, further comprising an enclosure containing a fluid, which is provided at one of an end of the movable iron core, an end of the shaft, and an end of the movable contact.

17. (New) The electromagnetic switching device according to claim 10, further comprising a body having insertion holes that receive pipes made of a high damping steel, the pipes receiving a fixing component that attaches the body to an external mounting.

18. (New) The electromagnetic switching device according to claim 17, further comprising flexible ring-shaped enclosures containing one of a magnetic fluid, an MR fluid, and an ER fluid, which are provided between the body and the external mounting.

19. (New) An electromagnetic switching device, comprising:  
an electromagnetic actuator, comprising a solenoid coil, a movable iron core, a first yoke disposed at one end of the solenoid coil and comprising an insertion hole, and a second yoke disposed at another end of the solenoid coil;  
a pair of fixed terminals, each of which has a fixed contact point at one end thereof and a terminal area connected to an external circuit at another end thereof;

a movable contact, comprising a pair of movable contact points that contact and separate from the fixed contact points;

a shaft, comprising a retentive part at one end thereof that retains the movable contact, the shaft being inserted through the insertion hole of the first yoke and being fixed to the movable iron core at another end thereof;

an enclosure which encloses the movable contact points and the fixed contact points;

a body which surrounds the electromagnetic actuator and the enclosure; and

a potting compound which fills a space between the body and the enclosure, wherein the pair of movable contact points contact and separate from the fixed contact points by movement of the shaft by moving the movable iron core along an axis of the electromagnetic actuator, and the movable contact points and the fixed contact points are disposed in a substantially sealed space formed between the enclosure and the first yoke.

20. (New) The electromagnetic switching device according to claim 19, wherein a width of a central portion of the enclosure is narrower than a width of outer portions of the enclosure.

21. (New) The electromagnetic switching device according to claim 19, wherein a recess is formed on an underside of the enclosure, a flange is formed on an end of the shaft and inserts into the recess, an insertion hole is formed in the flange, a valve opens and closes the insertion hole formed in the flange, and the recess is filled with

one of a gas, a liquid and particles which provide resistance against a movement of the shaft.

22. (New) The electromagnetic switching device according to claim 19, further comprising a mass, provided in the movable iron core, which vibrates in a direction of the axis of the electromagnetic actuator to reduce a vibration of the movable iron core.

23. (New) The electromagnetic switching device according to claim 19, wherein a gap is formed between the first yoke and the movable iron core.

24. (New) The electromagnetic switching device according to claim 19, further comprising an enclosure containing a fluid, which is provided at one of an end of the movable iron core, an end of the shaft, and an end of the movable contact.

25. (New) The electromagnetic switching device according to claim 19, wherein the body comprises insertion holes that receive pipes made of a high damping steel, the pipes receiving a fixing component that attaches the body to an external mounting.

26. (New) The electromagnetic switching device according to claim 25, further comprising flexible ring-shaped enclosures containing one of a magnetic fluid, an MR fluid, and an ER fluid, which are provided between the body and the external mounting.